

lesions in the ovary, as has already been pointed out, but they do believe that syphilis, by infection of the entire organism, produces, in some cases, disturbances in the function, but not in the tissue of the ovary, and that these ovarian disturbances cause menstrual disturbances in the form of hemorrhages. The rapid improvement under antiluetic therapy is a strong point against the theory of definite ovarian lesions, as these could hardly be influenced so quickly. Moreover, the combination of lues and gonorrhea is exceedingly frequent; the lesions following the latter condition, and also those following the frequent abortions that occur in syphilitics may in many instances be the underlying factors of the metrorrhagia. The authors declare themselves, however, thoroughly in accord with those writers who recommend a trial with specific therapy before radical treatment is decided upon for all cases in which a uterine hemorrhage is not definitely explained by local findings. In conclusion, the authors call upon the gynecologists, who have profited in the past by the pioneer work of the dermatologists in the realm of syphilis, to come forward and contribute their share, as there are still many mooted questions which the gynecologist is preëminently fitted to solve.

OTOLOGY

UNDER THE CHARGE OF

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Traumatic Rupture of both Drum Heads from Hand Grenade Explosion.—G. ALEXANDER (*Monatschr. f. Ohrenheilk.*, xlix, 8). The patient, a lieutenant, aged twenty-eight years, had good hearing up to the time of the explosion of a hand grenade three paces distant; there was no loss of consciousness, but an evident decrease of hearing in the right ear with a subsequent sensation of discomfort, and of passage of air outward through the ear, lasting two days; a few days later there was evident decrease in hearing in the left ear also. Following the explosion there was a general, continuous circulatory tinnitus and occasional headache, both temporal and occipital, with slight occasional dizziness. There was no discharge from the ears and the later otoscopic examination showed in the right ear a perforation the size of a millet seed in the anterior inferior segment of the drum head and in the left ear almost total destruction of the drum head and absolute retraction of the malleus; the edges of the perforations were congested and flecked with blood and, in the left ear, the torn remnants of the membrane were reflected inward upon the tympanic wall. The hearing in both ears was nearly normal, the right internal ear reacted normally in all respects, the left showed marked decrease in duration of hearing by bone conduction, but the hearing in that ear for the upper tone limit was normal; the static labyrinth reacted normally on both sides.

The treatment consisted in closure of the external canals with antiseptic gauze, renewed daily, with rapid diminution of the size of the perforations, that on the right side being entirely healed at the end of a week and the left one month later, when the patient was discharged with very nearly normal hearing. Similar ruptures of the drum head, as the result of explosion, with implication of the internal ear are comparatively rare. In this case the rupture was the result of a forcible explosion at close range, and in both sides ideal healing resulted, on the left side the remnantal portions of the drum head served to reconstitute the membrane by the intermediate growth of cicatricial tissue. The decrease in the hearing by bone conduction on the left side would indicate either a traumatic affection of the middle ear or trauma of the meninges, or both, and this persisted up to the time of the patient's discharge from observation. In confirmation of this observation Urbantschitsch reports a case in which the patient was thrown down by the explosion of a bomb several meters distant, and on arising found himself extremely hard of hearing in the right ear; examination showed a rupture of the drum head revealing the whole of the inner tympanic wall. Three weeks later there was spontaneous closure of the opening by cicatricial union of the remnants of the membrana vibrans and a later examination showed no sign of the rupture and the hearing was perfectly normal. In the use of hand grenades the conditions under which the patients are exposed to the explosion have a determinable influence upon the effect, in illustration of this the author cites 3 cases of such injury. All of the patients in question were possessed of practically normal hearing. In the first instance the explosion occurred within a confined space, in an artillery hut, while in the other 2 cases the explosion took place in the open. In the first instance the patient and his companions were thrown either to the floor or against the walls of the enclosure. Both auricles were burned by the flame of the resultant gases and there was subsequent distortion as the result of perichondritis. The patient was unconscious after the shock; whether this was the result of a concussion or the poisonous effect of the gases in a circumscribed space cannot definitely be determined. The right drum head was slightly thickened, the left drum head was normal, and the middle ear sound-transmitting apparatus had not been injured by the explosion, notwithstanding which fact there was a considerable impairment of hearing in both ears, similar to that previously observed in cases of poisoning by carbon dioxide. In the second case the patient was thrown to the ground by the simultaneous explosion of a shrapnel overhead and to his right, but did not lose consciousness. This experience was followed by headache, loud subjective noise in the right ear, and decrease in hearing; there was no vertigo. The patient was sent first to the relief station and then to the hospital, and an examination ten days later showed him to have prompt pupil reaction, no motor disturbance, and reflexes normal. In the right ear there was a sharply defined perforation in the centre of the drum head of the size of a millet seed and a tympanic hematoma; the left drum head was perfectly normal. In the third case the patient stood within two paces of a 10 cm. field gun, but too far forward. As a result, upon the firing of the gun, he was thrown to the ground, with an outflow of blood from the right ear but without loss of consciousness, and for the next eight

days had a peculiar sensation on the right side of his head upon sneezing and blowing his nose, accompanied by pain in the right ear, but no vertigo and no subjective noise. Examination showed an oval perforation in the anterior portion of the drum head, pars flaccida, and the posterior superior quadrant of the membrane vibrans being markedly congested and swollen. In the left ear there were merely slight catarrhal changes in the tympanum. The hearing in the right ear was much decreased and in the left ear was perfectly normal. In both cases the ear which was nearest the sound source was the one affected, and in both there was a characteristic depreciation in the hearing for the upper tone limit. Gaupp says in regard to the effect of hand-grenade explosions that they comprise four factors: namely, the air pressure, the influence of poisonous gases, the mechanical shock, and the psychic shock. The impairment of hearing in these cases is, as a rule, only an element in the production of a picture of a psychoneurosis, the impairment of hearing coming from two sources: the one a central cerebral disturbance and the other a condition incident to the effect of the concussion upon the peripheral organ of hearing. These components are found to vary considerably in the degree of their influence, and in a number of patients who lost both hearing and speech following exposure to hand-grenade explosions, two were restored to hearing and two to both hearing and speech after two months of electrical application and energetic suggestive treatment. In reference to the indirect injury to the ear the most common injury to the internal ear was that due to the effect of heavy blows upon the skull or to concussion due to missiles, without demonstrable injury, directly, of the petrous bone. Of 200 cases carefully examined there were 85 of indirect injury to the internal ear. In almost all cases of either traverse or penetrative wounds of the facial portion of the skull the inner ear was affected; in the majority of cases of glancing or gutter wounds of the skull the internal ear was found to functionate normally both as regards hearing and equilibrium. The glancing and gutter wounds of the mastoid process, however, were productive of a very marked participation of the internal ear.

HYGIENE AND PUBLIC HEALTH

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Vitality of the Cholera Vibrio in the Waters of New York Bay.—
GELAME (*Med. Rec.*, February 5, 1915, p. 236) states that, since